Environmental Justice Tier One Analysis for the Mandan, Hidatsa, and Arikara Nation's "Clean Fuels Refinery" Project

Environmental Justice is the goal to be achieved for all communities so that: 1) all people will be treated fairly with respect to the development and enforcement of protective environmental laws, regulations, and policies; and 2) potentially affected community residents are meaningfully involved in the decisions that will affect their environment and/or their health. Conversely, allegations of environmental injustice describe the situations where communities believe that the goal has not been achieved because of their belief that there is disproportionate exposure to environmental harms and risks. These environmental harms and risks often include, for example multiple sources of air pollution (indoor and outdoor), water quality concerns, and the cumulative impacts associated with living in some urban and rural areas.

The concept of Environmental Justice first became an expressed consideration with the publication of Executive Order 12898 on February 11, 1994. The Executive Order (EO) requires each Federal Agency to make achieving environmental justice part of its mission by "identifying and addressing…disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations in the United States" Executive Order No. 12898, §59 Fed.Reg.7629 (1994). The broad goal of EO12898 is then tempered in §6-609 by the caution that "this order is intended only to improve the internal management of the executive branch and is not intended to create any right enforceable against the United States."

These instructions for Federal agencies are then further clarified in the "Memorandum for the Heads of all Departments and Agencies" (See Appendix 3): Mitigation measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental effects of proposed Federal actions on minority communities and low-income communities. President's Memorandum for the Heads of All Departments and Agencies, 30 Weekly Comp. Pres. Doc. 6 (Feb. 11, 1994).

Site Specific Analysis

The purpose of the United States Environmental Protection Agency's (EPA's) Tier 1 Environmental Justice (EJ) analysis for the Mandan, Hidatsa, and Arikara (MHA) Nation's proposed Clean Fuels Refinery Project is to assess whether the incidence and severity of possible adverse impacts that might result from environmental sources of stress, including, but not limited to, the proposed refinery, are disproportionately higher in the community of concern than in the larger reference community.

In the Tier 1 EJ assessment phases, it is appropriate to rely on some evidence of different potentials for disproportionate exposure and adverse impacts in the community of concern compared with the reference community, in this case the surrounding counties and the State of North Dakota (State) at large. Thus, this assessment is qualitative in nature. This assessment is not intended to provide a quantitative assessment of the potential and actual impacts on the community of concern.

Throughout this document, there are references to the Draft Environmental Impact Statement for the MHA Nation's proposed Clean Fuels Refinery Project (DEIS) prepared by EPA and the Bureau of Indian Affairs (BIA). The DEIS includes both qualitative and quantitative information on the proposed project, the affected environment, and the environmental consequences of the proposed project and various project alternatives. EPA and BIA prepared the DEIS to analyze the environmental impacts of the following federal decisions:

- Whether the BIA should accept the 469 acre parcel purchased by the MHA Nation into trust for the purposes of the MHA Nation's proposal to construct and operate a clean fuels petroleum refinery and to produce buffalo forage;
- Whether EPA should issue a Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit for the process water discharges associated with operation of the proposed refinery.

The MHA Nation assisted with the preparation of the DEIS as a Cooperating Sovereign Nation and the U.S. Army Corps of Engineers (USACE) also assisted with the preparation of the DEIS as a cooperating agency. The purpose of the DEIS is to inform the public and government agencies about the potential environmental impacts of the proposed project and alternatives. The DEIS also includes mitigation measures and identifies the environmental regulations that would apply to the facility.

The project site contains portions of four Census 2000 tracts. Within each tract are one or more block groups that are wholly or partially within a 10-mile radius of the MHA Nation's proposed clean fuels refinery site. Portions of three counties (Ward, Mountrail, and McLean) are covered by the block groups within the 10-mile-radius affected area. The racial characteristics for the population within each block group within the 10-mile radius area are shown in Table 3-30 of the DEIS. A Geographic Information System (GIS) was used to determine the areas and demographics of each block group within the affected area.

The affected area selected for this EJ analysis includes the population of residents within a 10-mile radius of the MHA Nation's proposed clean fuels refinery site. This area was selected to include areas that may be affected by the proposed project. It is anticipated that potential contaminants from the refinery may affect primarily the area within a 1-mile radius of the project site; however, the 10-mile radius was selected to provide a more conservative analysis. It should be noted that this EJ analysis also includes information about historic, actual and potential environmental issues in the counties of Ward, Mountrail and McLean. EPA acknowledges that many of these issues may not impact the community of concern; however, for Tier 1 EJ assessments, it is important to ensure that the scope of issues covered is sufficiently broad.

Low Income Status

The goal of environmental justice is to identify potentially disproportionately high and adverse effects and mitigate such impacts. This analysis considers demographical information in conjunction with other information to evaluate whether a community may be disproportionately and adversely impacted by potential environmental concerns and whether those potential concerns may be exacerbated by EPA's carrying out of its programs, policies and activities.

EPA guidelines suggest that EJ assessments may be warranted where any readily identifiable group of individuals, whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines, who reside at a higher percentage than the State average. EPA's analysis of the area within a 10-miles radius of the project site shows that the poverty level of those living within this specific area is 15%. The North Dakota poverty level is 11.9%.

Disproportionately High and Adverse Effect Analysis

Since the area within a 10 mile radius of the site meets the preliminary criteria for determining an environmental justice community of low-income, the next step is to determine whether there is a disproportionately high and adverse effect on human health or the environment.

A. Environmental Justice Indicators

1. Indicators of Sources of Stress

Releases and potential releases of contaminants to air, surface water, ground water and soils are sources of stress that have been identified for the project area. The DEIS, specifically Chapter 3 – Affected Environment and Chapter 4 – Environmental Consequences, provides a detailed discussion of these issues.

a. Number of Environmentally Regulated Facilities within a Community[1]

Within 10 mile radius-

AIR - There is one facility subject to Clean Air Act regulations within the 10 mile radius around the site. That facility is the Bear Paw Energy Facility. It is a minor[2] air emitting facility. Located at this facility are criteria and hazardous air pollutant inventory material. The facility is a crude petroleum and natural gas facility.

TOXICS - The data from the Toxic Release Inventory (TRI) did not identify any facilities reporting toxic releases within a 10 mile radius of the proposed facility.

HAZARDOUS WASTE- No facilities generating hazardous waste or hazardous waste sites were identified within the 10 mile radius of the proposed site.

WASTEWATER - The towns of Plaza, Makoti and Ryder have domestic wastewater treatment plants (lagoons) which are permitted for discharge through the NPDES permit program.

DRINKING WATER - The City of Plaza had one historic health based violation which occurred between 1997-1998. This City has had several monitoring and reporting violations but none of these are significant violations. The last of these was reported in June of 2004. This City's primary water source type is groundwater and the population served is 167.

The City of Makoti, ND, has had four historic health-based violations, the latest occurring on November 1, 2002. All of the violations involved coliform exceedances. There were four monitoring and reporting violations, with none of the violations deemed significant. The latest violation occurred on March 1, 2005. The primary water source type is ground water, and the population served is 145.

The City of Ryder, ND has had no health-based violations found. EPA has no record of any health-based violations reported by the State for this water system. The system has had seven monitoring or reporting violations, none of which were significant violations. The latest of the violations occurred in January of 2004. The primary water source type for this facility is ground water and the population served is 92.

WATERSHEDS – The proposed facility will discharge to a tributary of the East Fork of Shell Creek. The area within a 10-mile radius of the proposed site is in the Lake Sakakawea watershed.

[1] All information taken from EPA-Envirofacts Warehouse at http://www.epa.gov/cgi-bin/cgi

[2] A source that emits or has the potential to emit less than the relevant major source amount of any pollutant regulated under the federal Clean Air Act.

Mountrail County

AIR- There are four facilities that produce and release air pollutants in Mountrail County, ND. These include; Bear Paw Energy Facility that is mentioned above. Enbridge Pipelines (North Dakota) LLC, which is involved with crude petroleum and natural gas. It is a minor air emitting facility and is located in Minot, ND; Plains Marketing L.P., which is located in Belfield, ND and is a minor air emitting facility that is described as involving crude petroleum pipelines; and Whiting Oil and Gas Corporation which is located in rural Mountrail County is a minor air emitting facility, which is involved with crude petroleum and natural gas.

TOXICS (Information from the Toxic Release Inventory (TRI) - There is one facility in Mountrail County that reported a historic toxic release. This facility is Northrop Corp, located in New Town ND. This facility is involved with electronic components. Information from this facility was from 1987, which is the latest reporting year on file for this facility. In 1987, this facility released 9295 pounds of 1,1,1-Trichloroethane. No discharges of chemicals into streams or bodies of water were reported for this facility for 1987. No transfers of chemicals to off-site locations were reported for 1987. This facility did not report any waste management activities for non Dioxin-like compounds nor for Dioxin-like compounds during 1987. This company did not report any chemicals as being treated, recycled or used in energy recovery for 1987, nor did this facility transfer any chemicals to a Publicly Owned Treatment Works (POTW) during this year. This company did not report any non-production releases for 1987.

HAZARDOUS WASTE- There are eight facilities that have reported hazardous waste activities in Mountrail County. The eight sites include: Amoco Bulk Storage Facility, located in Parshall, ND; Hidatco Incorporated, located in New Town, ND; New Town High School, located in New Town, ND; NL Baroid New Town Service Center, located in New Town, ND; Northrop Grumman Systems, located in New Town, ND; Project Safe Send, located in Stanley, ND; and Project Safe Send, located in Parshall, ND.

In addition to those listed above in Mountrail there are two facilities which have identified the potential for releases of hazardous substances. Neither of these sites is listed on the Superfund National Priorities List (NPL). These sites are New Town CCC Grain Bins, located in New Town, ND and Stanley CCC Grain Bins located in Stanley, ND.

There are no facilities that generate hazardous waste from large quantity generators in Mountrail County.

WASTEWATER- There are 15 facilities issued permits to discharge to waters of the U.S. in Mountrail County. Eight of these facilities involve sewerage systems, five of them involve beef cattle feedlots, two involve water supplies, and one is involved with beef cattle but is not a feedlot.

DRINKING WATER - There are five **community water systems** that serve the same people year round such as in homes or businesses in Mountrail County.

According to the Safe Drinking Water Information System (SDWIS) violation report maintained by EPA, which covers the period from 1993 through the present, there were no health-based violations found for the City of New Town, which has a primary water source of groundwater and which serves 1367 people. Health-based violations are based on whether the amount of contaminants from a facility exceeded regulatory requirements, or water was not treated properly. EPA has no record of any health-based violations reported by the State for this water system. The City of New Town's community water system had several historic monitoring and reporting violations but none that amounted to a significant

violation. Monitoring and reporting violation occur when the system fails to complete all samples or sample in a timely manner, or had another non-health-based violation. A significant monitoring violation means the system failed to take a large percentage of the required samples. Non-significant violations indicate that the water system failed to take some of the required samples, but did some of the required sampling. The last violation reported at this site was in 1999.

The City of Parshall had no health based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. The only monitoring or reporting violation at this facility was in January of 2005, and the violation was not a significant violation. This facility's primary water source type is surface water and the facility serves 981 persons.

The City of Plaza had one historic health based violation which occurred between 1997-1998. This City has had several monitoring and reporting violations but none of these are significant violations the last of these was reported in June of 2004. This City's primary water source type is groundwater and the population served is 167.

The City of Ross had one historic health based violation which occurred between November 1 and November 30, 2000. This City has had three monitoring and reporting violations but none of these were significant violations and the last of these was reported in 1997. This City's primary water source is groundwater and the population served is 48.

The City of Stanley had no health-based violations found, the EPA has no records of any health-based violations reported by the State, nor has there been any monitoring or reporting violations found or reported by the State. The City's primary water source is purchased ground water and the population served is 1279.

There are three **transient non-community water systems** in Mountrail County that do not consistently serve the same people such as rest stops, campground and gas stations.

Of these Brendles Bay Inc, located in Parshall, ND has had four health based violations dated from April 1, 2004 – June 30, 2004, August 1, 2003 – August 31, 2003, July 1, 2003 – September 30, 2003, and April 1, 1997 – June 30, 1997. This facility had one monitoring violation which was not considered a significant violation; this occurred in July, 2004. This facility's primary water source type is ground water and the population served is 70.

New Town Marina, located in New Town, ND has had no health based violations nor any monitoring or reporting violations. This facility's primary water source type is ground water and the population served is 30.

Traynor Park, located in Stanley, ND had two historic health based violations both dated July 1, 2000 – July 31, 2000. They have had three monitoring or reporting violations, with none of these being significant violations. The last of these violations was for the period from August 18, 1998 – September 18, 1998. This facility's primary water source type is ground water and the population served is 25.

WATERSHEDS – The main watershed found in Mountrail County is Lake Sakakawea and its tributaries. The two largest tributaries to Lake Sakakawea are Shell Creek and the East Fork of Shell Creek.

Ward County

AIR- There are nine facilities that produce and release air pollutants in Ward County. These include: Agriliance, LLC is a minor air emitting facility and is located in Minot, ND. Agriliance, LLC is described as working with phosphatic fertilizers and has the potential to release uncontrolled emissions of less then 100 tons/year. The current AIRS/AFS database does not have any pollutant data for this facility.

Bechtold Paving, Incorporated is a synthetic[3] minor air emitting facility and a minor air emitting facility. Bechtold Paving is located in Minot, ND and is described as working with asphalt paving mixtures and blocks. The current AIRS/AFS database does not have any pollutant data for this facility.

Cenex Harvest States Cooperative is a synthetic minor air emitting facility and is located in Minot, ND. It is described as a petroleum bulk station and terminal company. The current AIRS/AFS database does not have any pollutant data for this facility.

Enbridge Pipelines, LLC is a minor air emitting facility and is located in Minot, ND. They are involved with crude petroleum and natural gas. The current AIRS/AFS database does not have any pollutant data for this facility. This facility has the potential for uncontrolled emissions of less than 100 tons per year.

Minot Air Force Base is a major[4] air emitting facility. They are involved with national security, motor vehicle parts and accessories, aircraft, aircraft engines and parts, guided missiles and space vehicles. The current AIRS/AFS database does not have any pollutant data for this facility.

Minot Landfill is a major air emitting facility, and is a refuse system. The current AIRS/AFS database does not have any pollutant data for this facility.

Minot Milling is a minor air emitting facility. This facility is involved with flour and other grain mill products. The facility has the potential for uncontrolled emissions of less then 100 tons per year. The current AIRS/AFS database does not have any pollutant data for this facility.

Minot Paving Company, Inc. is a minor air emitting facility. It is involved with asphalt paving mixtures and blocks. The facility has the potential for uncontrolled emissions of less then 100 tons per year. The current AIRS/AFS database does not have any pollutant data for this facility.

Minot State University is a synthetic minor air emitting facility. It is a college, university and professional school. The facility has potential emissions below major source thresholds if it complies with federal regulations or limits. The current AIRS/AFS database does not have any pollutant data for this facility.

TOXICS (Information from the Toxic Release Inventory (TRI) - There are two facilities in Ward County that have reported historic toxic releases: North Dakota Concrete Products Company and U.S Air Force Minot AFB. North Dakota Concrete Products Company is involved in concrete products, except block and brick. The chemical release that was

[3] A source that is a minor source due to the application of enforceable controls that limit its potential to emit to below the relevant major source threshold(s).

[4] A source that emits or has the potential to emit more than 100 tons per year of any pollutant regulated under the federal Clean Air Act (250 tons per year for some types of facilities), more than 10 tons per year of a single hazardous air pollutant, or 25 tons per year of a combination of hazardous air pollutants.

reported by this facility is aluminum oxide (fibrous Form), this release was reported in both 1987 and 1988.

The other facility which has reported a toxic release is the U.S. Air Force, Minot AFB, which is a national security facility. This facility reported that they had a transfer of 10,787 pounds of ethylene glycol to an off-site location in 2004. This facility also reported ethylene glycol on-site recycling of 1,519 pounds in 2003 and 16,946 pounds in 2004.

HAZARDOUS WASTE- There are 82 facilities that have reported hazardous waste activities in Ward County. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to State environmental agencies. Of these, 4 facilities are small quantity generators, 3 facilities are transporters and 1 facility is a treatment, storage or disposal facility.

There are three facilities that have been or will be addressed through the Superfund process. One facility has been deleted from the NPL and two are not on the NPL. Those facilities are: Kenmare CCC Grain Bins, Minot Landfill, and Robinson Insulation Minot Plant. Minot Landfill is the facility that was deleted from the final NPL.

There are no facilities in Ward County that generate hazardous waste from large quantity generators.

WASTEWATER – In Ward County there are 14 facilities that have permits to discharge pollutants to waters of the United States. Of these, 13 are sewerage systems, and one is a water treatment plant.

DRINKING WATER –There are 20 community water systems that serve the same people year-round such as in homes or businesses. The following is the information regarding these facilities:

Battleground Addition located in Minot, ND, has had 10 health-based violations which exceeded the Maximum Contaminant Level (MCL) or water was not treated properly. The latest of the violations was in 2000. Each of the violations involved the contaminant coliform (TCR). This facility also had several monitoring or reporting violations. The latest of these was a public notice violation on April 12, 2005. This facility had five significant violations during the period from July 31, 2004 -February 1, 2005, and one in 2001 each involved failure to monitor coliform. This facility had 34 non-significant violations from 1994 to the present. This facility serves a population of 95 people. Their primary water source type is purchased ground water.

The City of Berthold, ND has had 14 historic health-based violations. The latest of these occurred on August 1, 2000. It involved exceedances of the MCL for coliform. All of the other violations involved exceedances of the MCL for coliform as well. The system had two monitoring or reporting violations, one of which involved a significant monitoring violation for coliform. The primary water source type for this system is ground water and the population served is 466.

The City of Burlington, ND in Ward County reported four health-based violations. The latest of these occurred on June 30, 2005 and involved an MCL exceedance of trihalomethanes. The system had one monitoring violation which was not considered significant and which occurred on June 1, 2002. The primary water source type for this system is ground water. The population that this system serves is 1096.

Colony Park, located in Minot, ND, has had two historic health-based violations, the latest occurring on March 31, 1995 and which involved an MCL exceedance of coliform. The system had 166 monitoring or reporting violations from 1993 to the present. Sixty-four

(64) of these violations were considered significant violations, the latest of which occurred in 2003. The primary water source type is purchased ground water and the system serves a population of 100.

Country Acres MHP, located in Minot, ND, has had no health-based violations found, and EPA has no record of any health-based violations reported by the State for this water system. There have been seven monitoring or reporting violations, with one of those being a significant violation at this facility. The only significant violation was in January of 1994. The latest violation occurred in October of 2004. The facility's primary water source type is ground water and the system serves a population of 25.

The City of Kenmare, ND, has had no health-based violations found, and EPA has no record of any health-based violations reported by the State for this water system. The system has had one monitoring or reporting violation; this violation was not a significant violation and occurred in 1999. The primary water source type is ground water and the population served is 1081.

Minot Air Force Base, located in Minot, ND has had no health-based violations found. EPA has no record of any health-based violations reported by the State for this water system. No monitoring or other violations were found and EPA has no record of monitoring or other violations reported by the State for this water system. The primary water source type for this facility is purchased ground water and the population served is 7,599.

The City of Minot, ND, has had one historic health-based violation which involved the Surface Water Treatment Rule (SWTR). This violation occurred in September, 1997. No monitoring or other violations were found and EPA has no record of monitoring or other violations reported by the State for this water system. The primary water source type for this facility is ground water and the population served is 36,567.

Minot Mobile Estates, Minot, ND has had three health-based violations all based on exceedances of the coliform safety standard. The latest of the violations occurred on October 1, 2000. This system has had 25 monitoring and reporting violations, none of which was a significant violation. The primary water source type is purchased ground water, and the population served is 105.

North Prairie RWU-System I, located in Minot, ND has had no health-based violations found. EPA has no record of any health-based violations reported by the State for this water system. No monitoring or other violations were found and EPA has no record of monitoring or other violations reported by the State for this water system. The primary water source type for this facility is purchased ground water and the population served is 1569.

North Prairie RWU-System II, located in Minot, ND has had one health-based violation which involved an exceedance of the coliform safety standard. This violation occurred July 31, 2005. The system has had one monitoring violation which was not a significant violation and this violation occurred on February 1, 2000. The primary water source type for this facility is purchased ground water and the population served is 2327.

North Prairie RWU-System III, located in Minot, ND has had no health-based violations found. EPA has no record of any health-based violations reported by the State for this water system. No monitoring or other violations were found and EPA has no record of monitoring or other violations reported by the State for this water system. The primary water source type for this facility is ground water and the population served is 532.

The City of Ryder, ND has had no health-based violations found. EPA has no record of any health-based violations reported by the State for this water system. The system has had seven monitoring or reporting violations, none of which were significant violations. The latest of the violations occurred in January of 2004. The primary water source type for this facility is ground water and the population served is 92.

The City of Sawyer, ND has had one health-based violation which occurred on January 1, 1994. This was based on an exceedance of the lead and copper rule. No monitoring or other violations were found and EPA has no record of monitoring or other violations reported by the State for this water system. The primary water source type for this facility is ground water and the population served is 377.

The City of Surrey, ND has had no health-based violations found. EPA has no record of any health-based violations reported by the State for this water system. The system has had one historic monitoring or reporting violation, which was not a significant violation. This violation occurred in October of 1998. The primary water source type for this facility is purchased ground water and the population served is 917.

Talbott Trailer Court, located in Minot, ND has had five health-based violations which involved exceedances of the coliform,lead and copper. The latest of these violations occurred on August 31, 1998. The system has had eight monitoring violations of which none were significant violations and the latest violation occurred on January 1, 2004. The primary water source type for this facility is ground water and the population served is 60.

WATERSHEDS – There are three major watersheds in Ward County. Lake Sakakawea is one of these watersheds. The largest tributary to Lake Sakakawea in Ward County is the East Fork of Shell Creek. The other two major watersheds are the Des Lacs River and the Souris River.

McLean County

AIR - In McLean County, the Falkirk Mining Company, which is located in Underwood, ND operates as a minor air emitting facility. Falkirk Mining is permitted to mine coal and operate a coal preparation facility.

TOXICS (Information from the Toxic Release Inventory (TRI) - There are two facilities that have reported toxic releases. These facilities are: Falkirk Mining Company and Great River Energy Coal Creek Station. Falkirk Mining Company is located in Underwood, ND, and is involved with bituminous coal and lignite surface mining. This facility had land releases totaling 80,283 pounds in 2000, 90,617 pounds in 1999, and 75,220 pounds in 1998. These releases were all on-site releases of ammonia.

The other company that reported Toxic Release Inventory (TRI) information was Great River Energy Coal, which is located in Underwood, ND. This facility involves some aspect of electric service. The facility reported total aggregate releases of TRI Chemicals excluding dioxin and dioxin-like compound of 4,599,308.1 pounds in 2004. Of these 302,880 were air emissions, 4,296,084.9 were releases to land and 4,599,212.7 were on-site releases with 95.4 being transfers off-site to disposal. The total aggregate releases of dioxin and dioxin-like chemical compounds totaled 1.9909 grams in 2004. Of these all were air emissions and all were on-site releases. The chemicals released at this site include: acetophenone, antimony compounds, arsenic compounds, barium compounds, benzo (G.H.I.) perylene compounds, chlorine, chromium compounds, cobalt compounds, copper compounds, diisocyanates, dioxin and dioxin-like compounds, hydrochloric acid, hydrogen fluoride, lead compounds, manganese compounds, mercury compounds, nickel

compounds, phenanthrene, polycyclic aromatic compounds, vanadium compounds, and zinc compounds.

HAZARDOUS WASTE- There are nineteen facilities that have reported hazardous waste activities. The nineteen sites include: Audubon National Wildlife Refuge, located in Coleharbor, ND; BIA Fort Berthold Agency, White Shield, ND; Falkirk Mining Company, Underwood, ND; Farmers Union Oil, Washburn, ND; Garrison Public School, Garrison, ND; Great River Energy-Coal Creek, Underwood, ND; Original Townsite Riverdale, Riverdale, ND; Project Safe Send, Garrison, ND; Riverdale Public School, Riverdale, ND; SMR Inc., Coleharbor, ND; Underwood Body Shop, Underwood, ND; USACE, Riverdale, ND; UPS-Washburn, Washburn, ND; USACE-Sakakawea Lake Office, Riverdale, ND; Western Area Power-Snake Creek Sub., Coleharbor, ND; WAPA-Washburn Sub., Washburn, ND.

In addition to those listed above in McLean there is one facility that is listed as a small quantity generator.

There are no Superfund sites or facilities that generate hazardous waste from large quantity generators in McLean County.

WASTEWATER- There are 11 facilities that have permits to discharge pollutants to waters of the U.S. in McLean County. Of these 6 are sewerage systems, one is a bituminous coal and lignite surface mining facility, one is a fish hatchery and preserve, two are water supplies and one is an electric services facility.

DRINKING WATER- There are eleven **community water systems** in McLean County. Under the Safe Drinking Water Information System (SDWIS) violation report, there were 9 health based violations found for the City of Benedict which has a primary water source of groundwater and which serves 53 people. Violations were related to coliform, lead and copper discharges. The last violation was dated July 31, 2002. This site had 4 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was in 2004.

The City of Coleharbor had no health-based violations found, and EPA had no record of any health-based violations reported by the State for this water system. The last monitoring and reporting violation at this facility was in January of 1999, with 2 other violations occurring at an earlier date. None of these violations were significant violations. This facility's primary water source type is purchased ground water and the facility serves 106 persons.

The City of Garrison had no health-based violations found, and EPA had no record of any health-based violations reported by the State for this water system. This City has had several monitoring and reporting violations but none of these are significant violations the last of these was reported in April of 2005. This City's primary water source type is surface water and the population served is 1318.

The Garrison Rural Water Association, located in Garrison, ND, had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This facility did not have any monitoring violations found. EPA has no record of monitoring or other violations reported by the State for this water system. This City's primary water source is purchased surface water and the population served is1376.

The City of Max had no health-based violations found and EPA had no records of any health-based violations reported by the State. The City of Max did have one historic

monitoring and reporting violation reported in May of 1998. This was not a significant violation. The City's primary water source is purchased ground water and the population served is 278.

The McLean-Sheridan Rural Water Association, located in Turtle Lake, ND, had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This facility did not have any monitoring violations found. EPA has no record of monitoring or other violations reported by the State for this water system. This City's primary water source is ground water and the population served is 1199.

The City of Mercer which has a primary water source of groundwater and which serves 86 people had 2 health-based violations found. The contaminate of concern was coliform. The last violation was dated June, 1998. This site had 19 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was in 2004.

The City of Riverdale had 1 health-based violation found. The contaminate of concern was haloacetic acids (HAA5). The last violation was dated April 1, 2005. This site had 3 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was in 2005.

The City of Turtle Lake had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This facility did not have any monitoring violations found. EPA has no record of monitoring or other violations reported by the State for this water system. This City's primary water source is purchased ground water and the population served is 508.

The City of Underwood which has a primary water source of ground water and which serves 812 people had 4 health-based violations found. Contaminates of concern were coliform, lead and copper. The last violation was dated October 31, 1998. This facility did not have any monitoring violations found. EPA has no record of monitoring or other violations reported by the State for this water system.

The City of Washburn which has a primary water source of surface water and which serves 1389 people had 3 health-based violations found. Contaminates of concern were a violation of the surface water treatment rule (SWTR) and a violation of the lead and copper rule. The last violation was dated September 1, 1997. This site had 6 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was in 2005.

There are eight **transient non-community water systems** that do not consistently serve the same people such as rest stops, campground and gas stations in McLean County.

Asbury Camp Meeting Association (office located in McLean County, ND) has had one health-based violation on June 30, 2001. The contaminate of concern was coliform. This site had 4 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was July 1, 2003. The primary water source type for this facility is ground water and the population served is 100.

Camp of the Cross-Garrison, located in Garrison, ND has had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This site had 1 monitoring and reporting violation which did not amount to a significant violation. The last reported violation at this site was dated July 1, 2003.

The primary water source type for this facility is purchased surface water and the population served is 45.

Douglas Creek Recreation Area, located in Riverdale, ND has had no health -based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This site had 1 monitoring and reporting violation which did not amount to a significant violation. The last reported violation at this site was dated July 1, 2003. The primary water source type for this facility is purchased surface water and the population served is 45.

Downstream Campground, located in Riverdale, ND has had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This site had 1 monitoring and reporting violation which did not amount to a significant violation. The last reported violation at this site was dated May 31, 2003. The primary water source type for this facility is surface water and the population served is 280.

Fort Stevenson State Park, located in Garrison, ND has had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This site had 1 significant monitoring and reporting violation. The last reported violation at this site was dated October 1, 2004. The primary water source type for this facility is purchased surface water and the population served is 800.

Hunters Lodge, located in Butte, ND has had no health-based violations found, and the EPA had no record of any health-based violations reported by the State for this water system. This facility did not have any monitoring violations found. EPA has no record of monitoring or other violations reported by the State for this water system. This City's primary water source is ground water and the population served is 30.

Indian Hills Resort, located in Garrison, ND has had three health-based violations, the latest dated July 1, 2001. The contaminate of concern was coliform. This site had 6 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was August 1, 2002. The primary water source type for this facility is purchased ground water and the population served is 25.

Triangle Y Camp, located in Minot, ND has had one health-based violation, dated July 1, 2002. The contaminate of concern was coliform. This site has had 9 monitoring and reporting violations but none that amounted to a significant violation. The last violation reported at this site was August 1, 2002. The primary water source type for this facility was purchased surface water and the population served is 100.

There is one facility that is listed as a Non-Transient Non-Community Water System. This type of water system serves the same people, but not year round, e.g. schools that have their own waters systems. This facility is the Coal Creek Station, located in Underwood, ND. This facility has had one health-based violation dated January 28, 1995 related to a violation of the surface water treatment rule. This facility did not have any monitoring violations found. EPA has no record of monitoring or other violations reported by the State for this water system. The primary water source type for this facility was surface water and the population served is 486.

WATERSHEDS – The main watershed found in McLean County is Lake Sakakawea/ Missouri River and their associated tributaries.

2. Indicators of Environmental Vulnerability

Indicators of environmental vulnerability provide general information about the physical characteristics of the environment surrounding the affected community that may increase or decrease the likelihood or magnitude of impacts from any environmental contamination resulting from the proposed facility.

Chapter 3 of the DEIS includes an in-depth discussion of the general physical environment surrounding the proposed refinery site, including the geologic setting (hydrogeology and geologic hazards), ground water resources, surface water resources, water supply, soils, vegetation, wildlife, threatened and endangered species, air quality, cultural resources, aesthetics and socioeconomics. Following is a summary of related information gathered for this Tier 1 EJ analysis.

a. Climate

North Dakota experiences large fluctuations in temperature across seasons, light to moderate precipitation, low humidity, a plethora of sunshine and virtually continuous wind. Specifically, annual average temperature in North Dakota ranges from 37 ºF in the north / northeast to 44 ºF in the south. In the winter months, average temperatures range from 0 – 15 ºF, with sub-zero temperatures averaging 40 – 70 days a year. Average summer temperatures range from 65 - 72 ºF, with extreme temperatures (> 90 ºF) occurring 10 – 24 days per year. Average annual temperature in Mountrail County is approximately 39 ºF; in Ward County, approximately 40 ºF; and in McLean County, approximately 41 ºF.

Average annual precipitation ranges from 14 – 22 inches in North Dakota; rainfall occurs on average 65 – 100 days per year. However, over 50% of these days produce less than 0.10 inch of rain. Annual average snowfall for the State ranges from 25 – 45 inches. In Mountrail County, total annual rainfall ranges from 8.16 – 17.72 inches; in Ward County, from 6.10 – 18.76 inches; and in McLean County, 8.01 – 17.09 inches.

Average wind speeds range from 10 to 13 mph. Prevailing winds in the east of the State come from the north / northwest during winter and south / southeast in the summer; for the rest of North Dakota, wind directions are west, northwest and north during most of the year. Average wind speeds in Mountrail County are approximately 8.9 mph; 10.2 mph in Ward County, and 10.6 mph in McLean County.

(State-wide statistics were derived from NOAA's National Climatic Data Center, at http://hurricane.ncdc.noaa.gov/climatenormals/clim60/states/ Clim_ND_01.pdf; county-specific statistics were derived from North Dakota Agricultural Weather Network database, at http://ndawn.ndsu.nodak.edu/yearly-table-form.html).

b. Geomorphic Features

North Dakota is divided into four main physiographic regions: the Great Plains (southwestern region), the Missouri Coteau, the Glaciated Plains, and the Red River Valley. Fort Berthold Indian Reservation falls within the Missouri Coteau, which is a 30

– 70 mile wide strip of land that extends diagonally from the northwest corner of the State to the south-central border, and consists of steeply rolling topography with 300 to 500 feet of local relief.

The Rocky Mountains to the west of the State block or modify the cool, moist air masses moving eastward from the Pacific Ocean. However, the lack of barriers in the north-south direction allows for cold, dry air masses from the north to mingle with warm, humid air masses from the south, resulting in nearly continuous wind and large day to day temperature fluctuations in all seasons. (State-wide data comes from NOAA's National Climatic Data Center, at http://hurricane.ncdc.noaa.gov/climatenormals /clim60/states/Clim_ND_01.pdf).

c. Hydro-Geomorphic Features

North Dakota has two major watersheds and river systems: the west and south-central that drain into the Missouri River and the east and north-central that drain into the Red River. The Fort Berthold Indian Reservation lies within the Missouri River watershed, with a number of tributaries draining into it. Local floods are seen on occasion on all tributaries and are generally associated with spring snowmelt or summer rainfall. (State-wide data comes from NOAA's National Climate Data Center, at http://hurricane.ncdc.noaa.gov/climatenormals/clim60/states/ Clim_ND_01.pdf).

The people of the affected community appear to use both ground water and surface water for drinking and daily activities. See DEIS for further details on effects of proposed facility on both ground water and surface water.

In Mountrail County, approximately 3,980 of 6,630 people are served by the public water supply, of which approximately 0.23 Mgal/day comes from ground water withdraws and 0.12 Mgal/day comes from surface water withdraws. The remaining 2,650 people in Mountrail County get their water from a self-supplied source (i.e., private well); 0.21 Mg/day is drawn from ground water reserves (none from surface water).

In Ward county, approximately 48,850 / 58,800 people are served by the public water supply, of which approximately 6.88 Mgal/day comes from ground water withdraws and 0.01 Mg/day comes from surface water withdraws. The remaining 9,950 people access water from a self-supplied source; 0.76 Mgal/day is withdrawn from ground water.

In McLean County, approximately 5,910 / 9,310 people are served by the public water supply; 0.39 Mgal/day is drawn from ground water and 0.30 Mg/day is drawn from surface water. The remaining 3,400 people access water from a self-supplied source; 0.25 Mgal/day is drawn from groundwater.

(County-level data extracted from the USGS water use database for North Dakota, at http://water.usgs.gov/watuse/data/2000/index.html).

d. Presence of Ecologically Sensitive Areas

North Dakota has 9 threatened or endangered animal and plant species and one candidate species as defined under the Endangered Species Act as identified by the U.S. Fish and Wildlife Service, including the Interior Least Tern, Whooping Crane, Black-footed Ferret, Pallid Sturgeon, Bald Eagle, Gray Wolf, Piping Plover, Western Prairie Fringed

Orchid, Piping Plover and Dakota Skipper (candidate species). Seven of these species can be found in Mountrail County; 6 in Ward County; 7 in McLean County.

(County-specific data comes from the U.S. Fish and Wildlife Service North Dakota field office, at http://northdakotafieldoffice.fws.gov/ county_list.htm).

Consideration of the influence that the proposed facility may have on wildlife, birds, aquatic species, specific threatened or endangered animals and plants can be found in the DEIS.

3 General Demographic Social Indicators

It is important to recognize that although some proposed actions may have only limited impact on the integrity of the environment surrounding an affected community, such actions, as a result of certain demographic or social features of that community, may still have an adverse effect on certain populations within the affected community. Therefore, it is important to consider the social and demographic characteristics of the affected community as part of this environmental justice assessment.

a. Population Density

Population density may increase or decrease the risk of adverse health effects experienced by a community as well as affect the ability for a community to make and influence decisions regarding their surrounding environment and well-being. According to the 2005 U.S. Census, the population of North Dakota is approximately 636,677, with a population density of 9 persons per square mile (compared to the population density of the United States of 84 persons per square mile). Ward County has a population density of 28 persons per square mile; Mountrail County, 4 persons per square mile and McLean County, 4 persons per square mile.

(Population density data extracted from the U.S. Census Bureau, Population Finder database, at http://factfinder.census.gov/servlet/ SAFFPopulation?_submenuId=population_0&_sse=on).

b. Population Analysis (Ethnic distribution)

Native Americans make up approximately 4.9% of the population of North Dakota, which is proportionately greater than that of the U.S. population (0.9%). Approximately 2.1% of Ward County, 5.9% of McLean County, and 30% of Mountrail County is Native American.

(County-specific population analysis data extracted from the U.S. Census Bureau Fact Finder database, North Dakota Fact Sheets for individual counties, at http://factfinder.census.gov).

c. Languages Spoken

In North Dakota as a whole, 6.3% of the population speaks a language other than English at home, as compared to 17.9% of the U.S. population. Approximately 4.7% of Ward County, 5.7% of McLean County, and 6.6% of Mountrail County speak a language other than English in the home. According to this County-level assessment, the ability for affected communities to actively participate in public decision making may not be a substantial problem for this community. However, upon examination of individual

census tracts of Mountrail County, Census tract 9401 has up to 24.6% of its' population speaking a language other than English in the home; 8.1% in Census tract 109 in Ward County; 9.75% in Census tract 9403 in McLean County). It is important, therefore, to consider the ability for individual communities at the sub-county level to participate in public decision-making.

(Census tract specific language analysis data extracted from the U.S. Census Bureau Fact Finder database, North Dakota Fact Sheets for individual counties, using thematic maps for census-tract specific information, at http://factfinder.census.gov).

In consideration of non-English speaking individuals, EPA and BIA announced that any person could testify in his or her native language at any of the 7 public hearings held on the DEIS. The hearings were recorded and provisions were made to interpret and transcribe all testimony for inclusion in the administrative record for the decisions to be made by EPA and BIA.

d. Literacy

The National Center for Educational Statistics has information on literacy rates at the national level only. According the U.S. Census, approximately 83.9% of the population of North Dakota 25 years and over are high-school graduates, compared to 80.4% of the U.S. population. At a county level, 87.4% of Ward County, 77.9% of Mountrail County, and 79.0% of McLean County are high school graduates.

(County-specific data extracted from the U.S. Census Bureau Fact Finder database, North Dakota Fact Sheets for individual counties, at http://factfinder.census.gov).

4. Indicators of Potential Vulnerability to Stress

It is possible that a particular sub-population or community may be more vulnerable to environmental exposures due to lack of access to certain amenities such as public transportation and health care facilities. These aspects of the community are, therefore, important to consider when assessing the potential impact that the proposed facility might have on the affected community.

a. Access to Public Transportation

Over 85% of workers in North Dakota either drive alone or car-pool when commuting to and from work. Only 0.5% of workers use public transportation, while another 4.9% walk to work. Approximately 53% of the population of North Dakota lives in an urban environment, where public transportation is most likely readily available. There are approximately 339,000 automobiles registered in North Dakota, with approximately 458,944 licensed drivers. Approximately 2,300 buses are registered in the State. There are approximately 86,609 miles of public road ways available in North Dakota; 572 miles of which are interstates. These data indicate that a good proportion of the population of North Dakota has access to transportation. County-level and region specific data was not available for this EJ analysis.

(Transportation data accessed from the Bureau of Transportation Statistics, North Dakota Transportation Profile, at http://www.bts.gov/publications/state_transportation_profiles/north_dakota/index.html).

b. Access to Health Care Facilities

Not all groups or communities have equal access to health care facilities. Those without access tend to go undiagnosed and untreated. Those without access to health care facilities include those without health insurance and those unable to travel to a health care facility.

In North Dakota, approximately 11% of the total population is uninsured, compared to 16% of the U.S. population. 9% of children are uninsured in North Dakota, as compared to 12% in the U.S. population. These data indicate that North Dakota, as a whole, has more people covered by health insurance than the general U.S. population.

Further, North Dakota has approximately 40 community hospitals, 4 federally-funded Federally-Qualified Health Care Centers (FQHCs), and 59 rural health clinics. North Dakota has approximately 5.6 hospital beds per 1,000 population in 2004, as compared to 2.8 per 1,000 in the general U.S. population. This data suggests that on average, the people of North Dakota have better access to health care facilities than the general U.S. population.

As discussed in the DEIS, health care on the Reservation is provided by IHS. The primary health care facility is the Minne-Tohe Health Center in New Town. However, IHS also has satellite health stations at Mandaree, White Shield, and Twin Buttes. The Tribal Health Department provides a Community Health Representative Program and the Ambulance Service for emergency health care services. There is also a dialysis center on the Reservation. Hospitals and a wide range of other health services are available in Minot.

(Access to health care facility statistics for North Dakota accessed from the Kaiser Family Foundation State Health Facts Database, at http://www.statehealthfacts.org/cgi-bin/healthfacts.cgi?action=profile).

5. Economic Indicators

Economic indicators reveal trends about the community's socio-economic well-being. This section of the analysis will provide data about the economy of the community.

a. Employment rates

This is defined as the percentage of persons in the labor force who are seeking employment and is an indictor of the degree to which the economy provides jobs for those seeking work. This statistic is a measure of the economic opportunities in a community and the degree to which a particular community is able to meet their basic needs.

U.S. Unemployment rates for May of 2006 are 4.6%. North Dakota's unemployment rate for May, 2006 is 3.3%. (U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics Information and Analysis)

For the same period, the County of Ward has a 3.3% unemployment rate. The County of Mountrail has a 5.2 % unemployment rate, and the County of McLean has an unemployment rate of 3.6%. (U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics Information and Analysis)

b. Income levels and distribution

This statistic measures the overall income levels of the community and the proportion of the total households that are in different income categories. Low incomes can be associated with poor health and low levels of civic participation and would be indicative of areas where a more thorough analysis of impacts should be considered.

Median household incomes for North Dakota in 2003 were $38,223. In McLean County that number was less than the State with the median household income being $36,744. In Mountrail County the median household income was $32,138 and in Ward County the median household income was $38,278.

Persons living below the poverty level in North Dakota in 2003 were 10.5%. In McLean County that number is 11.6%. In Mountrail County the number in 2003 was 13.6% and in Ward County for the same period the number is 10.1%. (U.S. Census Bureau, Quick Facts)

c. Percent of Homeowners in Community Who Rent

In an environmental justice context, the percentage of owner-occupied units versus renter-occupied could have an impact on the community's interest, willingness, and availability to participate in environmental decisions affecting the community.

In North Dakota as a whole in 2004, there were 300,815 housing units. 66.6% of those housing units were owned by the person living in the home. 24.6% of units in North Dakota are multi-unit structures. Persons per household in the State average out to be 2.45%.

In McLean County, in 2004 there were 5,317 housing units. Homeownership rates were 82.2% and multi-unit structures were 7%. Persons per household in the County average out to 2.40%.

In Mountrail County, in 2004 there were 3,457 housing units. Homeownership rates were 72.6% with 9.2% of the units being multi-unit structures. Persons per household in the County average out to2.53%.

In Ward County, in 2004 there were 23,041 housing units. Homeownership rates were 62.6% with 24.8% of the units being multi-unit structures. Persons per household in the County average out to2.46. (US Census Bureau, County Quick Facts)

6. Indicators of Government Response Actions

Certain data regarding governmental actions can provide information about the level of commitment the local or state government has for encouraging meaningful public participation in the decision making process. This section of the analysis will look at indicators of government that might provide insight into the commitment to garnering meaningful public participation.

a. Public Participation

As part of the National Environmental Policy Act (NEPA) public involvement process, EPA and BIA held a scoping meeting to provide the public an opportunity to be involved early in the decision-making process related to this proposed refinery project. Scoping issues and concerns raised by the public were influential in the development of alternatives and the focus of the environmental impact analysis in the DEIS.

EPA and BIA held a series of 7 public hearings and question and answer sessions at each of the different segments of the Fort Berthold Indian Reservation between July 31st and

August 5th, 2006. The purpose of the hearings was to solicit oral comments from the public on the DEIS. The public comment period in which the public may provide written comments on the DEIS began on June 30, 2006, and is scheduled to run until September 14, 2006. The public comment period was extended based on requests received from members of the public.

EPA and BIA have issued a fact sheet regarding the DEIS and the timeline for the NEPA and Clean Water Act NPDES permit processes. The Agencies have made the DEIS and draft NPDES permit available for review at 9 locations in and around the Reservation as well as at the regional offices of BIA and EPA. EPA and BIA have also prepared and issued radio announcements to inform the public of the availability of the DEIS and the dates and locations of the public hearings. In addition, EPA and BIA have mailed copies of the DEIS and supporting documents to all parties that have expressed an interest in reviewing them..

7 Indicators of Existing Health Conditions

Health indicators include general statistics on the existing health condition of community residents, such as morbidity, as well as health impacts from environmental stressors (particularly impacts on a sensitive subpopulation).

According to the DEIS, Native American residents of the reservation have shown higher instances of chronic diseases such as cancer and asthma in comparison with the general population of the United States. Several factors that contribute to the health of Native Americans include poverty, access to adequate healthcare, sanitation, proximity of pollution sources, and social behaviors. According to the North Dakota Indian Affairs Commission (1999):

- 78 percent of young Indian women, ages 14 to 24, are at high risk for contracting the HIV/AIDS virus.
- Indian youth, ages 15 to 24 years, have a 382 percent higher suicide rate than the white suicide rate. (67.5/100,000 compared with 17.7/100,000)
- The poverty rate for Indians in North Dakota is more than three times the rate for North Dakota all-races population - 38 percent compared with 11 percent.
- In the Northern Plains, the Median Household Income for Indians is $12,310 as compared with the U.S. all-races median of $30,056.
- Indians are nearly 7.5 times as likely to live in households without adequate sanitation facilities as the general North Dakota population.

The following section of the EJ analysis provides examples of Health Indicators, that may be relevant to an environmental injustice situation, but which go beyond the scope of this current analysis.

a. Infant Mortality Rate

In the context of environmental justice, above average infant mortality in a community might reflect environmental hazards, including the possible cumulative effect of various environmental contaminants. However, this statistic is sensitive to a variety of community health factors that impact pregnant women and newborn infants, including nutrition, drug and alcohol use, and disease status. Local statistics on infant mortality rate were not readily available for this EJ analysis

b. Low Birth Weight

As for the case with infant mortality, if the average birth weight in a community is considerably lower than the average birth weight of the surrounding area, then the population in the community might be experiencing more environmental stress. Again this statistic is sensitive to a variety of community health factors that impact pregnant women, including nutrition, drug and alcohol use, and disease status. Recent studies have indicated that low birth-weight children tend to continue to have health problems throughout childhood. Such children, therefore, might be more sensitive and less resistant to environmental hazards than other children. Local statistics on low birth weight were not readily available for this EJ analysis

c. Age-adjusted mortality rate

Assigning an accurate cause of death to adults is generally easier than for infants. Higher death rates among adults due to illnesses that tend to have environmental components, such as asthma and bronchitis, cancer, and diseases due to pathogens, might indicate that the community is subject to higher levels of environmental contamination than other communities. Local statistics on mortality rate were not readily available for this EJ analysis

d. Life expectancy at birth

Life expectancy is a widely accepted and standard measure of health outcomes and is included here as a broad-based measure of human health. Local statistics on life expectancy were not readily available for this EJ analysis.

8. Indicators of Health Impacts from Site Specific Environmental Stressors:

a. Number of illnesses attributable to chemical contaminants

Some types of diseases or health conditions can be caused by exposure to abiotic contaminants in the environment. Comparison of the incidence of particular types of disease or health conditions in a community of concern with the incidence of those conditions in other communities (or with national averages) can provide an indication of whether the community of concern is actually experiencing a disproportionate share of those adverse health effects. Such comparisons should be conducted with applicable statistical techniques using appropriate principles of epidemiological research (e.g., consideration of possible confounding factors) and, alone, do not constitute evidence of causation. Furthermore, the size of a community of concern often is too small to demonstrate statistically significant increases in the incidence of a disease compared with other communities. Diseases with long latency periods, such as cancer, might be indicative of exposures that occurred decades earlier. Thus, it usually is not possible to conclusively demonstrate the existence or cause of increased incidences of diseases related to exposure to such contaminants. If a community appears to be experiencing a higher than expected incidence of diseases, that might be caused by chemical contaminants, examination of other indicators is warranted. This might include indicators of possible sources of such contaminants, exposures to the contaminants, and other health effects expected from exposure to those contaminants. Moreover, individuals in such communities might be at greater risk of (i.e., more sensitive or exhibiting less resistance to) contracting an illness or developing other adverse health effects from a future exposure than would communities with lower disease incidence rates.

Chapter 4 of the DEIS at pp. 4-127 through 4-131 presents information regarding the history of risks posed by refinery air emissions and refinery employees' health risks.

b. Number of diseases attributable to pathogens

Other types of diseases or health conditions are caused by exposure to living organisms such as viruses and bacteria. Some of these are associated with specific vectors (e.g., mosquitoes) that affect fate and transport in the environment. Others of these are typically associated with specific types of environmental contamination (e.g., animal feces) with predictable routes of human exposure (e.g., drinking water). Many of the same considerations apply to the assessment of incidence of these diseases as to the incidence of diseases attributed to chemical contamination. The adverse health effects of many water-borne pathogens, however, often are manifest within hours of an exposure, however, making it easier to identify the source of the pathogens. Communities experiencing higher rates of pathogen-caused diseases indicate the existence of problems that need to be addressed quickly.

B. Assessment of Potential for "Adverse" Impacts

1. Environmental Effects or Impacts

The purpose of this section is to use available data collected on environmental stresses and the community to determine whether there are likely to be adverse environmental and human health/welfare impacts, taking into account community specific considerations.

As discussed in detail in the DEIS, the potential environmental impacts associated with the refinery are expected to vary depending upon the construction alternative selected for the refinery and the selected effluent discharge alternative. A brief discussion of the types of environmental impacts analyzed in the DEIS is summarized below.

Groundwater, Soils and Spills

- Ground water occurs beneath the refinery site. Groundwater is in the underlying material called "till" which was deposited by glaciers in an approximately 100-foot thick layer. Ground water generally moves slowly in till layers due to low permeability. Depth to water in the till aquifer typically ranges from 5-15 feet. Ground water in the till appears to flow toward the southwest at about 0.4 to 2.4 ft/year. Ground water also occurs in the Ft. Union Formation, which underlies the till and the Fox Hills Formation which underlies the Ft. Union Formation.
- It is anticipated that there would be spills and leaks at the proposed refinery facility. Almost all refineries and other petrochemical facilities such as gas stations eventually have spills and leaks. The majority of spills and leaks would be completely contained within the facility and would not impact the environment. However, over time, it is expected that there would be some contamination of soils and groundwater immediately underneath the refinery site due to leaks and spills. The contamination would remain generally within the refinery site unless a major spill occurred or a series of spills and leaks occurred over time.
- Areas within the refinery storing synthetic crude or refinery products would be required to be lined and have secondary containment (e.g., berms) to hold the entire contents of storage tanks. Areas with a high potential for spills such as the loading area for trucks and railcars would also be paved and curbed which should contain most spills.
- Due to the shallow depths to water, groundwater resources in proximity to the refinery could be affected by leaks and spills. Adverse impacts to ground water withdrawn by individual well users and public supply systems are not anticipated, except for the well at the existing farm house. That well would no longer be used for drinking water after the refinery begins operating. Other individual wells are not anticipated to be impacted because of the relatively low

permeability of the till underlying the refinery site. The next closest farmstead is 1/3 of a mile from the proposed refinery site.

- Communities in the area such as Makoti and Plaza located three and five miles from the proposed refinery, respectively, use ground water as a source of drinking water. However, these communities use either the Fox Hills-Hell Creek or buried valley aquifers. Water quality in these aquifers are not expected to be impacted by the proposed facility because, the buried valley aquifers do not occur in the vicinity of the refinery and the depth to the top of the Fox Hills –Hell Creek aquifer is more than 1000 feet beneath the proposed refinery location. If the alternative for wastewater disposal through an underground injection well is selected (Alternative C), the injection zone would be required to be below any aquifer that could be used for drinking water.
- Water supply for the refinery would be from a combination of sources including the Fox Hills-Hell Creek aquifer, recycled water from the refinery and run-off collected from the site. If the refinery uses the Fox Hills-Hell Creek aquifer for the majority of its water supply, there may be localized draw down in the aquifer.

MITIGATION/CONTROLS - The MHA Nation has not promulgated Tribal standards for ground water; does not have a ground water classification system or a ground water discharge permit system in place. However, impacts to ground water in the till would be minimized by designing the refinery to prevent and contain leaks and spills. Holding ponds would be lined to prevent or minimize leakage into the ground water. Measures to implement prompt cleanup and repair of leaks and spills would further minimize potential impacts to ground water underlying the site in the till and impacts to the community located in and around the refinery.

Surface Water

- The site is located in the headwaters of a small unnamed tributary of the East Fork of Shell Creek which is tributary to Lake Sakakawea. With regard to effluent discharge Alternatives A and B, stormwater and treated wastewater from the refinery would be discharged at the surface. For alternative C, only stormwater would be discharged at the surface and process water would be discharged through an underground injection well.
- The proposed refinery construction alternatives would need surface water discharge permits (NPDES) for stormwater discharges and depending on the effluent discharge alternative selected, for wastewater discharges. EPA will be using this EIS to assess the environmental impact of EPA's future decision to issue or not issue a surface water discharge permit to the proposed refinery. Treated wastewater discharges from the facility would cause minor changes in existing water quality. EPA has developed preliminary NPDES discharge limits for wastewater discharges anticipated at the refinery. These limits have been developed in consideration of Tribally-adopted (Tribal Business Council adopted on May 11, 2000) water quality standards for the Reservation, as well as standards for the State of North Dakota and EPA water quality criteria. The proposed NPDES permit would require that wastewater discharges be protective of aquatic life, drinking water, agriculture and wildlife uses. No NPDES permits would be needed for the non-construction alternatives and water quality would remain the same as existing conditions.
- Construction and operation of the proposed refinery would change the quantity and flow pattern of the drainage from the site. The paving/hardening of the refinery site would increase runoff and reduce infiltration. If the refinery collects most of the runoff for use as water supply, there would be less water flow from the site for the majority of storm events.

Solid and Hazardous Waste

- The proposed refinery would operate as a large quantity generator of hazardous waste under the Resource Conservation Recovery Act (RCRA). The facility, through the RCRA generator regulations, would be required to transport the waste to approved hazardous waste facilities for the treatment and disposal of the waste. Many of the waste streams from refineries are specifically listed under the RCRA regulations as hazardous wastes.
- All refinery construction alternatives, except for the combination of Alternatives 4 and A, would also be a Treatment Storage and Disposal (TSD) Facility under RCRA. The facility would need to obtain a TSD permit from EPA for any of these alternatives. The TSD permit includes requirements for monitoring, financial assurance, inspections and facility closure plans.
- With regard to solid waste, the facility will be required to comply with EPA "Criteria for Classification of Solid Waste Disposal Facilities and Practices" at 40 CFR Part 257.

Vegetation, Wetlands

- The portion of the site that would be used for the proposed refinery would be changed from an agricultural to industrial use.
- Both jurisdictional and non-jurisdictional wetlands exist on the proposed refinery site. Jurisdictional wetlands are those wetlands which are considered to be waters of the US for purposes of the Clean Water Act. Non-jurisdictional wetlands are isolated waters that are not subject to Clean Water Act jurisdiction.
- The USACE determined one wetland, which covers 11.7 acres in the northwest corner of the site, to be subject to Clean Water Act jurisdiction. According to the initial site plan (Alternative 1), 0.5 acres of the jurisdictional wetland would be filled by the proposed refinery. An alternative site plan (Alternative 4) has been developed in part to reduce filling of jurisdictional wetlands to 0.1 acres. A Clean Water Act Section 404 permit for the discharge of dredged or fill material would be needed from the USACE prior to construction.
- The jurisdictional wetland would be impacted by the proposed refinery. Changes in the quality and quantity of water flowing into this wetland would change the hydrology and vegetation in the wetland.
- Non-jurisdictional wetlands may also be impacted during construction of the refinery.
- Any filling of wetlands will be mitigated by the creation or restoration of additional wetlands.

Wildlife, Threatened and Endangered Species

- The United States Fish and Wildlife Service (FWS) expressed concerns about potential effects to the threatened Piping Plover and endangered Whooping Cranes from landing on open water areas in the refinery wastewater treatment facilities or colliding with overhead power lines. Mitigation measures have been developed to discourage birds from using ponds within the refinery site, including adding netting to prevent birds from landing in open tanks or ponds with oily wastewater and placing cobbles on the sideslopes of the constructed ponds to discourage plovers from nesting. Electrical transmission lines will be constructed to minimize collision and electrocution risks to birds

Transportation

- The refinery will increase traffic on local roads and on the rail line. With the shipment of refinery products, there would be an increased probability of petroleum products spills along the pipeline corridor, transportation corridors and the rail line.

Air Quality

- Air emissions from the refinery would be minor. Potential air emissions have been modeled; demonstrating that the proposed facility would not cause any exceedances of the National Ambient Air Quality Standards (NAAQS) or Prevention of Significant Deterioration (PSD) increments. At this time, EPA has determined that no Clean Air Act permits will be required for the facility because the total quantity of air pollutants emitted throughout the year by the refinery are less than the regulatory thresholds for any air permits.
- Effects to air quality were evaluated using existing monitoring data available for the Reservation and surrounding areas, projections of criteria and hazardous air pollutant emissions from the refinery, and air quality modeling. The air quality modeling overlaid Reservation and surrounding areas, projections of criteria and hazardous air pollutant emissions from the refinery, and air quality modeling. The air quality modeling overlaid projected emissions on existing conditions and quantitatively estimated the potential near-field and far-field effects. Near-field effects are those that occur within a 10-km radius of the project, and far-field effects are those that occur at the Class I areas described in Chapter 3. The modeling was built on recent modeling done by EPA for Prevention of Significant Deterioration (PSD) purposes in North Dakota. It included analyses that compared concentrations of criteria air pollutants with the NAAQS, the Class I or Class II increments, and air-quality-related values. The modeling also included an analysis that compared concentrations of hazardous air pollutants (HAPs) with reference concentrations.
- The primary sources of air pollutants would be the various heaters and boilers that serve the refinery's processes and general facility heating requirements. A soybean/oilseed oil extrusion process and a bio-diesel production process would also be included in the proposed project. The air quality technical report (EPA May 2006) provides a detailed discussion of the sources of air pollutants evaluated in the analysis and the processing and modeling of the data.
- The cumulative effects analysis prepared for the DEIS evaluated the potential effects of the refinery on regional air quality. Criteria pollutant background concentration data were also used to assess these impacts. The modeling analyses demonstrate that the refinery would have negligible impacts on the quality of air. The air quality technical report (EPA May 2006) provides a detailed discussion of the analysis, including the modeling of inputs and outputs.

Human Health

- With proper operation of the refinery, potential impacts to human health are anticipated to be negligible to the general public. Pollutants or materials which would be of concern to public health would be contained within the refinery, treated to nontoxic levels or disposed of at approved hazardous waste facilities.
- During the operation of the proposed clean fuels refinery, releases of various chemicals and hazardous materials during refinery operations are the most significant concern for impacts to human health. Transporting, handling, storing, and disposing of chemicals and hazardous materials inherently poses a risk of a release to soil, groundwater, air, surface water, and sediment. Numerous regulatory programs would be implemented at the proposed facility to

prevent or control potential releases such as the emergency response planning, oil spill response planning and containment measures, NPDES permits, RCRA, and OSHA requirements.

- In the remote event of a catastrophic spill or fire, there could be emissions from the facility that would be of concern to public health in the immediate area of the refinery, however, there are currently no residences or businesses located in the immediate area of the refinery site.
- The air modeling analyses show that the potential impacts of toxic air pollutants would be below levels of concern to human health outside of the proposed refinery site.
- Potential human health impacts to employees would be greater than the general public, because of the workers' proximity to chemicals and potential exposures during refinery operations. Six toxicological studies are discussed in Chapter 4 of the EIS. The studies of workers in the petrochemical industry, when taken as a whole, do not suggest clearly identifiable impacts to workers.

Socioeconomics

- Economic benefits associated with the refinery may increase the quality of life for members of the MHA Nation. However, negative effects to the quality of life may be experienced by the communities surrounding the facility due to increases in highway traffic, noise, and light pollution during construction and operation of the facility.

C. Assessment of the Potential for Disproportionately

1. "High and Adverse" Effects or Impacts

The objective of this Tier 1 EJ analysis conducted for the MHA Nation's proposed Clean Fuels Refinery Project was to determine if high disproportionate and adverse human health or environmental effects on the community residing in proximity to the proposed refinery site could occur as a result of EPA's issuance of an NPDES permit for the proposed facility.

Based on the information collected for this Tier 1 EJ analysis and the information developed in the DEIS, EPA believes that the community located in and around the proposed refinery would not be subject to impacts from environmental sources that are disproportionately higher than in the larger reference community.